

Docket Number: N1-16394
Appl. No. 10/510,996
Reply to Office Action of July 14, 2008

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Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1-14 (Cancelled)

15. (Currently Amended) A patient support apparatus comprising:

a first component;

a second component configured to move relative to said first component along a path of travel;

a detection unit comprising:

a single emitter supported by one of said first and second components and

a plurality of detectors supported by the other of said first and second components, said detectors configured to provide a control signal in response to an obstacle within said path of travel between the emitter and any one of the plurality of detectors; and

a control unit in communication with said detector and ~~configured to prevent relative movement of the first and second components in response to said control signal;~~ and

a lifting device configured to move said second component vertically relative to said first component and wherein said control unit deactivates said lifting device if any one of said plurality of detectors fails to detect a signal emitted by said single emitter.

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16. (Previously presented) The patient support apparatus of claim 15, wherein said emitter generates an obstacle detection signal.

17.-20. (Cancelled)

21. (Previously Presented) The patient support apparatus of claim 15, wherein said emitter comprises an infrared source.

22. (Cancelled)

23. (cancelled)

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27.-31. (Cancelled)

32. (Previously presented) The patient support apparatus of claim 15, further comprising an indicator configured to indicate failure of any one of said plurality of detectors to detect an obstacle detection signal emitted by said single emitter.

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33. (Previously presented) The patient support apparatus of claim 16, wherein said obstacle detection signal includes a pulsed portion having a predefined frequency, and said detector is configured to detect said predefined frequency.

34. (Previously presented) The patient support apparatus of claim 33, wherein said predefined frequency is approximately 57 kHz.

35. (Previously presented) The patient support apparatus of claim 33, wherein said pulsed portion has a duration of approximately 600 microseconds followed by a delay of approximately 2 milliseconds.

36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

39-60. (Cancelled)

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61. (Currently Amended) A method of preventing movement of a movable component of a bed upon detection of an obstacle within a path of travel of the component, said method comprising the steps of:

providing the bed having the movable component;
providing a detection unit comprising a single emitter and a plurality of detectors;
causing the emitter to emit an obstruction detection signal ~~in response to~~ for detecting an obstacle within a the path of travel between the emitter and any one of the detectors;

moving said component;
generating a stop signal if at least one of said detectors fails to detect said obstacle detection signal;
and

preventing movement of said movable component in response to said stop signal- wherein said movable component includes an elevating frame movable relative to a base frame, and the moving step includes moving said elevating frame relative to said base frame.

62. (Previously presented) The method of claim 61, wherein said step of generating a signal comprises the steps of providing a light source and emitting infrared light from said light source.

63.-66. (Cancelled)

67. (Cancelled)

68-73. (Canceled)

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74-75. (Canceled)

76. (Cancelled)

77-79. (Canceled)

80.-82 (Cancelled)

83-86. (Cancelled)

87.-88 (Cancelled)

89-94. (Canceled)

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95. (Currently Amended) The A patient support apparatus of ~~claim 15 wherein the first component is a base frame, the second component is an elevating frame configured to move along the path of travel above the base frame, and wherein the control unit is configured to prevent movement of the elevating frame.~~ A patient support apparatus comprising:

a ~~first component~~ base frame;

a ~~second component~~ an elevating frame configured to move relative to said ~~first component~~ base frame along a path of travel;

a detection unit comprising:

a single emitter supported by one of said ~~first and second components~~ frames and

a plurality of detectors supported by the other of said ~~first and second components~~ frames, said detectors configured to provide a control signal in response to an obstacle within said path of travel between the emitter and any one of the plurality of detectors; and

a control unit in communication with said detector and configured to prevent relative movement of the ~~first and second components~~ frames in response to said control signal

96. (Previously presented) the patient support apparatus of claim 95 wherein the emitter is supported by the base frame and the detectors are supported by the elevating frame.

97. (Previously presented) The patient support apparatus of claim 95, wherein the prevented movement is movement of the elevating frame toward the base frame.

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98. (Previously presented) The patient support apparatus of claim 97 wherein the prevented movement is lowering of the elevating frame relative to the base frame.

99.-100. (Cancelled)

101. (Previously presented) The patient support apparatus of claim 16 wherein the obstacle detection signal is a wireless signal.

102. (Previously presented) The patient support apparatus of claim 101 wherein the wireless signal is an electromagnetic curtain.

103. (Cancelled)

104. (Previously presented) A patient support apparatus, comprising:

first and second sides extending substantially parallel to each other;

third and fourth sides extending substantially parallel to each other and substantially perpendicular to the first and second sides, the first and second sides cooperating with the third and fourth sides to define corners,

first and second detection units associated respectively with the first and second sides, the first detection unit oriented to emit an obstacle detection signal away from the third side and toward the fourth side, the second detection unit oriented to emit a signal away from the fourth side and toward the third side.

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105. (Previously presented) The bed of claim 104, comprising a third detection unit associated with the third side and an optional fourth detection unit associated with the fourth side, the first, second and third detection units and the fourth detection unit, if present, each comprising an emitter proximate one corner and a detector proximate another corner, the emitter of the third detection unit and the emitter of the fourth detection unit, if present, being oriented to not emit a signal toward a detector of the first or second detection unit.

106. (Previously presented) The bed of claim 104 wherein the first side is a left side, the second side is a right side, the third side is a foot side and the fourth side is a head side.

107. (Previously presented) The patient support apparatus of claim 104 wherein each of the detection units comprises a single emitter and a plurality of detectors.

108. (Previously presented) The patient support apparatus of claim 105 wherein each of the detection units comprises a single emitter and a plurality of detectors.

109. (Previously presented) The method of claim 61 wherein the obstruction detection signal is a wireless signal.

110. (Previously presented) The method of claim 61 wherein the obstruction detection signal is an infrared signal.

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111. (Previously presented) The method of claim 61
wherein the obstruction detection signal forms a curtain.